Type Fixation.

By Morgan Hebard, Academy of Natural Sciences, Philadelphia, Pennsylvania.

In the January Entomological News[1] appeared a caustic attack by W. S. Blatchley on the fixation of single types of two of his species by T. H. Hubbell. Blatchley has well defined a "type" in the modern restricted sense now generally accepted, but evidently does not appreciate the vast difference between marking a specimen as such and its valid published first fixation.

The unique type (sometimes termed holotype) is all important we agree, and Blatchley's present trouble is entirely due to his failure to designate such types in his descriptions of new species published in his "Orthoptera of North-Eastern America" in 1919. Such action he knew at that time to be generally considered of the utmost importance, indeed it has been a requisite in all publications of the American Entomological Society since 1914.

He now says he has expected to publish fixations of the types of all his species in a single paper, but as eleven years have passed since the description of the species discussed, we are not nearly as surprised as he to find that someone else is first in making these selections. That he had labelled a specimen of each species "type" in his collection might have been a factor in choosing the proper specimen as type, but more than one specimen of the original series of a species has often been labelled "type" in the past and labels can be removed or shifted. The fact remains that, *until the single type of a new species has been designated in print, each specimen included without query in the originally described series must be considered a cotype. Any such specimen may be chosen as type and the first published designation of such (by the author of the species or anyone else) fixes the type of that species irrevocably.*

As Hubbell's is the first fixation of the type of the species *Ceuthophilus davisi* and *Ceuthophilus rehebi* (described by Blatchley in 1919) and is based in each case on a cotype in the Davis Collection (from which the original series came), that

[1] Volume XLI, pages 17 to 19.

action is valid and is not in any way affected by Blatchley's belated attempt to fix as these types specimens in his own collection, made paratypes for all time by Hubbell's earlier and first published fixation.

Whether he likes or not, Blatchley's negligence has forced another to select these types and *if the type of a species has not been indicated in the original description and a specimen, included without query in the originally described series, is subsequently indicated in print as the type of that species, all subsequent type designations are thereby invalidated* and have no significance whatever.

Blatchley states that he neither knows nor cares what the ruling of the Entomological Code may be in a situation such as his present dilemma. We are satisfied that Hubbell has obeyed the rules for single type selection and that his action will be upheld.

As a matter of fact, as the selector has the right to choose any cotype, has not Hubbell made the wisest choice in each case in taking a specimen from the series of cotypes belonging to the collection which was the source of that entire series, rather than from one of the cotypes given to the describer in return for the work he had done? Such is indeed the almost universal practice today between institutions or between individuals.

We have asked James A. G. Rehn for any further comments he might have on this matter and he has furnished the following:

Mr. Blatchley in his arguments evidently declines to admit that an individual author has no more control over a species once published by him than any other student. Once given to the world, a species is world property without prior lien, and if the original author failed to indicate a single type and he or anyone else has not done so in the intervening time, any investigator can designate any one of the *originally* studied series as the single type, no matter where it may be located, provided that it was before the describer at the time of description. Mr. Blatchley's contention would return to Philadelphia quite a few insect types which have since been fixed in the collections of

other Institutions, although the main series on which the species were based, and so labelled "type", are in the Academy of Natural Sciences. Therefore our remarks are not inspired by opposition, but instead by the practice of entomologists at this time, and the universally recognized right of any of the original material to be selected as the single type by any investigator, the published fixation being the court of last resort.

Behavior Notes on the Yellow Jacket, Vespa germanica (Hymen.: Vespidae).

By Phil Rau, Kirkwood, Missouri.

(Plate XIX.)

While no opportunity has presented itself to make a complete study of this widely distributed wasp, these desultory notes on certain aspects of its behavior may be of interest in making us better acquainted with this already familiar little terror of summer picnics, commonly known as the yellow-jacket. That it is a familiar figure, we all know; that it is of general distribution is evidenced by the reports that it is common throughout the United States, in Europe and Canada.

One colony of *V. germanica* was discovered at Wickes, Missouri, on September 2, 1920. A hole in the ground, three-fourths inch in diameter, went down to the roof of this nest, which was two and one-half inches below the surface of the ground. The burrow containing this nest was almost apple-shaped, four inches deep and three to three and one-half inches in diameter. The whole nest had probably been covered, or the pocket in the ground lined, with a layer of paper, like the covering of a *V. maculata* nest, for many scraps of this material lay at the bottom, but people had poured water into this hole and otherwise tried to exterminate the wasps, and this maltreatment had probably broken up this covering sheath. The nest itself consisted of three combs, one atop the other, and connected by strong props or pedicels.

The nest was opened at 9 a. m. and a cyanide jar placed in the opening. During the next two hours, about twenty wasps returned; this gives an indication of the number out of the